REMARKS

Claims 1-3 and 8 have been amended. Claims 1-8 are pending in the instant application. Support for the amendments to the claims can be found in the specification at, for example, page 22, lines 6-16 and in Figure 3. No new matter has been added as a result of the above-described amendments. The rejections set forth in the Office Action have been overcome by amendment or are traversed by argument below.

1. Election/Restriction

The Office Action states that newly amended claims 3-8 are directed, in part, to inventions that are independent or distinct from the invention originally claimed because claim 3 encompasses the non-elected invention of Group 1, as identified in the Restriction Requirement mailed April 11, 2001, as well as a multitude of other distinct inventions comprising nucleotide sequences encoding polypeptides having amino acid sequences that differ from the amino acid sequence of the polypeptide encoded by the elected invention. The Action also states that claims 3-8, to the extent that the claims are drawn to non-elected inventions, are withdrawn from consideration as being directed to a non-elected invention.

Applicants note that claim 3 has been amended to recite an isolated nucleic acid molecule comprising a nucleotide sequence encoding a polypeptide comprising an amino acid sequence as set forth in SEQ ID NO: 5, wherein the isoleucine residue at position 12 may be substituted with a methionine residue, the serine residue at position 18 may be substituted with a cysteine residue, the isoleucine residue at position 19 may be substituted with a valine residue, the threonine residue at position 22 may be substituted with a serine residue, the lysine residue at any of positions 25, 61, or 64 may be substituted with an arginine residue, the arginine residue at position 26 may be substituted with a lysine residue, the arginine residue at position 27 may be substituted with a histidine residue, the asparagine residue at position 51 may be substituted with a threonine residue, the histidine residue at position 55 may be substituted with an asparagine residue, the valine residue at position 81 may be substituted with an isoleucine residue, and the residues at any of positions 5, 8, 10, 11, 14, 17, 20, 31, 32, 33, 34, 36, 37, 38, 39, 40, 43, 44, 46, 47, 48, 49, 50, 52, 57, 59, 62, 65, 66, 67, 68, 69, 70, or 71 may be substituted with any naturally occurring amino acid; or a nucleotide sequence that is complementary to the above nucleotide sequence. Exhibit A indicates that the amino acid

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sequences of SEQ ID NO: 5 and SEQ ID NO: 2 differ, *inter alia*, in that the threonine, arginine, and leucine residues at positions 37-39 of the amino acid sequence of SEQ ID NO: 5 are deleted in the amino acid sequence of SEQ ID NO: 2. As a result, the amino acid sequence of SEQ ID NO: 2 is three amino acids shorter than the amino acid sequence of SEQ ID NO: 5. Exhibit A also indicates that the amino acid sequences of SEQ ID NO: 5 and SEQ ID NO: 7 differ, *inter alia*, in that the threonine, arginine, and leucine residues at positions 37-39 and the leucine residue at position 65 of SEQ ID NO: 5 are deleted in the amino acid sequence of SEQ ID NO: 7. As a result, the amino acid sequence of SEQ ID NO: 7 is four amino acids shorter than the amino acid sequence of SEQ ID NO: 5. Applicants contend that neither the amino acid sequence of SEQ ID NO: 2 nor the amino acid sequence of SEQ ID NO: 7 can be constructed from the amino acid sequence of SEQ ID NO: 5 simply by making amino acid substitutions in the amino acid sequence of SEQ ID NO: 5. Applicants contend that because the genus of nucleic acid molecules recited in amended claim 3 encompasses only molecules encoding substituted variants of the amino acid sequence of SEQ ID NO: 5, amended claim 3 does not encompass the non-elected invention of Group 1, and claim 3 is therefore not directed to inventions that are independent or distinct from the invention originally claimed.

In addition, Applicants note that claim 3, as originally filed, recited, *inter alia*, an isolated nucleic acid molecule comprising a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5 with at least one conservative amino acid substitution, a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid insertion, a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5 with at least one amino acid deletion, a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5 which has a C- and/or N- terminal truncation, and a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5 with at least one modification selected from the group consisting of amino acid substitutions, amino acid insertions, amino acid deletions, C-terminal truncation, and N-terminal truncation. Applicants further note that because claim 3, as originally filed, was *only* assigned to Groups 1 and 2 in the Restriction Requirement mailed April 11, 2001, the claims of Group 1 must be directed to nucleic acid molecules encoding murine Secs-1 polypeptides and murine Secs-1 polypeptide variants (*i.e.*, SEQ ID NO: 1 and variants thereof), and the claims of Group 2 must be directed to nucleic acid

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molecules encoding human Secs-1 polypeptides and human Secs-1 polypeptide variants (*i.e.*, SEQ ID NO: 4 and variants thereof). Applicants contend that because the genus of nucleic acid molecules encoding human Secs-1 polypeptide variants recited in originally filed claim 3, and assigned to the invention of Group 2, encompasses *each and every* member of the genus of nucleic acid molecules recited in amended claim 3, amended claim 3 does not encompass the non-elected invention of Group 1, and claim 3 is not directed to a multitude of other distinct inventions comprising nucleotide sequences that differ from the nucleotide sequence of the elected invention.

Applicants, therefore, respectfully request that the full scope of the subject matter recited in claim 3 be considered.

2. Grounds of Objection and Rejection Withdrawn

The Office Action states that the grounds of rejection of claims 1-8 under 35 U.S.C. § 112, second paragraph, set forth in the Office Action mailed June 4, 2002 have been withdrawn because even though the nucleotide sequence of a DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755 is not actually described in the specification, the DNA insert is defined at page 2, lines 26-29 of the specification to be a nucleotide sequence encoding an allelic variant or splice variant of the nucleotide sequence of SEQ ID NO: 4. The Action also states that it is therefore clear that while the nucleotide sequence of the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755 differs from SEQ ID NO: 4, it nevertheless encodes the human Secs-1 polypeptide (*i.e.*, the polypeptide of SEQ ID NO: 5). The Action further states that the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755 is thus regarded as the portion of the cloned nucleic acid molecule in the deposit which encodes the human Secs-1 polypeptide and which does not comprise a portion of the parental cloning vector.

Applicants first wish to thank the Examiner for attempting to clarify the record. Applicants respectfully contend, however, that the portion of the specification cited by the Examiner, which contains language that is nearly identical to and which provides explicit support for originally filed claim 2, does not define the DNA insert in ATCC Deposit No. PTA-1755 as comprising a nucleotide sequence encoding an allelic variant or splice variant of the nucleotide sequence of SEQ ID NO: 4. Applicants contend, instead, that the specification at page 2, line 20 to page 3, line 9 defines a genus of nucleic acid molecules that includes a nucleotide sequence encoding a polypeptide that is at least

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about 70 percent identical to the polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5 wherein the encoded polypeptide has an activity of the polypeptide set forth in SEQ ID NO: 2 or SEQ ID NO: 5; a nucleotide sequence encoding an allelic variant or splice variant of the nucleotide sequence as set forth in SEQ ID NO: 1 or SEQ ID NO: 4, the nucleotide sequence of the DNA insert in ATCC Deposit Nos. PTA-1753 and PTA-1755, or the nucleotide sequence recited at page 2, lines 22-25; a region of the nucleotide sequence of SEQ ID NO: 1, SEQ ID NO: 4, the DNA insert in ATCC Deposit Nos. PTA-1753 or PTA-1755, the nucleotide sequence recited at page 2, lines 22-25, or the nucleotide sequence recited at page 2, lines 26-29 encoding a polypeptide fragment of at least about 25 amino acid residues wherein the polypeptide fragment has an activity of the encoded polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5, or is antigenic; a region of the nucleotide sequence of SEQ ID NO: 1, SEQ ID NO: 4, the DNA insert in ATCC Deposit Nos. PTA-1753 or PTA-1755, or any of the nucleotide sequences recited at page 2, lines 22-25, page 2, lines 26-29, or page 2, line 30 to page 3, line 3 comprising a fragment of at least about 16 nucleotides; a nucleotide sequence which hybridizes under moderately or highly stringent conditions to the complement of any of the nucleotide sequences recited above; and a nucleotide sequence complementary to any of the nucleotide sequences recited above. Applicants contend, therefore, that it is clear that the portion of the specification cited by the Examiner (*i.e.*, page 2, lines 26-29) merely recites a genus of nucleic acid molecules, wherein said genus includes within its scope nucleotide sequences that encode an allelic variant or splice variant of (a) the nucleotide sequence as set forth in either SEQ ID NO: 1 or SEQ ID NO: 4, (b) the nucleotide sequence of the DNA insert in ATCC Deposit Nos. PTA-1753 or PTA-1755, or (c) a nucleotide sequence encoding a polypeptide that is at least about 70 percent identical to the polypeptide as set forth in SEQ ID NO: 2 or SEQ ID NO: 5, wherein the encoded polypeptide has an activity of the polypeptide set forth in SEQ ID NO: 2 or SEQ ID NO: 5.

Moreover, Applicants respectfully disagree with the Action's assertion that the nucleotide sequence of the DNA in ATCC Deposit No. PTA-1755 encodes the polypeptide of SEQ ID NO: 5. As described in Applicants' response to the Office Action mailed June 4, 2002, Applicants amended claims 1 and 2 to recite an isolated nucleic acid molecule comprising a nucleotide sequence as set forth in SEQ ID NO: 4, *or* a nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755. Applicants contend that if the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755 were construed as simply encoding the polypeptide of SEQ ID NO: 5, the language of, for

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example, claim 1(c) would be rendered superfluous as redundant. Moreover, as noted in Applicants' response to the Office Action mailed June 4, 2002, such a presumption would deprive Applicants of an opportunity to correct minor sequence errors as permitted by the *Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, P1, "Written Description" Requirement*, 66 Fed. Reg. 1099, 1108 nn.19-20 (2001). Applicants, therefore, respectfully contend that the DNA insert in ATCC Deposit No. PTA-1755 is more properly defined as comprising a nucleotide sequence that encodes *a* Secs-1 polypeptide. To more particularly point out and distinctly claim the subject matter that Applicants regard as their invention, claims 1 and 2 have been amended to recite "a nucleotide sequence of the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755."

3. Objection to the Specification

The Office Action asserts an objection to the specification because of the use of improperly demarcated trademarks.

Applicants have amended the specification as indicated above to identify the trademarks appearing in the instant application by capitalizing each letter of the mark or by using a proper trademark symbol (*i.e.*, ®). Applicants, therefore, respectfully request that this objection be withdrawn.

4. Objection to claims 3-8

The Office Action asserts an objection to claims 3-8 because claim 3 is drawn in the alternative to the subject matter of non-elected inventions.

As described in section 2 above, Applicants have amended claim 3 so that it is no longer drawn in the alternative to the subject matter of non-elected inventions. Applicants, therefore, respectfully request that this objection be withdrawn.

5. Rejections of claims 1, 2, and 4-8 under 35 U.S.C. § 112, first paragraph

The Office Action asserts a rejection of claims 2 and 4-8 under 35 U.S.C. § 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The Action states that the disclosures and figures

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referred to in Applicants' response to the Office Action mailed June 4, 2002 as providing support for the limitation "but not more than 80 amino acid residues" do not appear to provide a sufficient antecedent basis for recitation of this limitation in the claims, and therefore, that the recitation of this limitation appears to introduce new matter.

Applicants note that claim 2 recites, in part, an isolated nucleic acid molecule comprising a region of the nucleotide sequence of SEQ ID NO: 4 or the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755, encoding a polypeptide fragment of at least about 25 amino acid residues, but not more than 80 amino acid residues, wherein upon injection into an animal the polypeptide fragment produces an antibody that binds to the polypeptide as set forth in SEQ ID NO: 5. Applicants also note that the amino acid sequence of the human Secs-1 polypeptide described in Figure 2 and in SEQ ID NO: 5 is 81 amino acids in length. Applicants further note that the specification defines the term "Secs-1 polypeptide fragment" as referring to a polypeptide that comprises an amino-terminal and/or carboxyl-terminal truncation of the polypeptide of SEQ ID NO: 5 (page 9, lines 14-17). Applicants contend that because the claim containing the limitation "but not more than 80 amino acid residues" recites only *fragments* of the polypeptide of SEQ ID NO: 5, and the human Secs-1 polypeptide of SEQ ID NO: 5 comprises 81 amino acids, then perforce a fragment of the polypeptide must necessarily be a truncated form of the human Secs-1 polypeptide of SEQ ID NO: 5 as defined in the specification (*i.e.*, a polypeptide of not more than 80 amino acid residues). Applicants respectfully contend that their disclosure provides explicit support for this limitation in, for example, Figure 2 and SEQ ID NO: 5, and at page 9, lines 14-17. Withdrawal of this rejection is therefore respectfully solicited.

The Office Action also asserts a rejection of claims 1, 2, and 4-8 under 35 U.S.C. § 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most clearly connected, to make and use the invention. The Action states that because the DNA insert in ATCC Deposit No. PTA-1755 is not set forth in the specification, it is apparent that this deposit would be required to make and use the invention. The Action also states that because this deposit does not appear to be known or publicly available, or capable of being reproducibly isolated by a repeatable method set forth in the specification, and the claims require the use of this deposit, the mere reference to the deposit in the specification is insufficient to ensure that all of the conditions of 37 C.F.R. §§ 1.803-1.809 have

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been met. The Action further states that a deposit made in full compliance with 37 C.F.R. §§ 1.803-1.809 would satisfy the requirements of 35 U.S.C. § 112, first paragraph, provided that Applicants submit a statement by an attorney of record over his or her signature and registration number, stating that a deposit has been made under the terms of the Budapest Treaty and that all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of a patent.

Applicants respectfully contend that their specification would enable one having ordinary skill in the art to isolate a nucleic acid encoding a Secs-1 polypeptide from a mammalian cell producing such a polypeptide without the exercise of undue experimentation. Applicants contend that it is well within the skill of one having ordinary skill in the art to produce such a nucleic acid, in view of Applicants' disclosure of nucleic acid sequences (SEQ ID NO: 2 and SEQ ID NO: 4) that encode murine and human Secs-1 polypeptides, respectively. Being provided with this disclosure, the exercise of merely routine experimentation would be required for one of skill in the art to isolate such a nucleic acid.

However, solely in an effort to expedite prosecution of the pending claims to allowance, and pursuant to the Examiner's request, Applicants' representative submits the following statement: Applicants deposited cDNA encoding human Secs-1 polypeptide with the American Type Culture Collection (ATCC), 10801 University Boulevard, Manassas, VA 20110-2209. The deposit was accepted by the ATCC, an International Depository Authority, under the provisions of the Budapest Treaty, and the deposit was designated as PTA-1755. A copy of the ATCC receipt for this deposit, showing the patent deposit designation (Accession No. PTA-1755) and the date on which the deposit was received by the ATCC (April 25, 2000) is attached. Pursuant to 37 C.F.R. § 1.808(a)(2), the deposit was made under conditions that assure that all restrictions imposed by the depositors on the availability to the public of the deposited material would be irrevocably removed upon the granting of a patent relying on the deposited biological material. In making the deposit, Applicants acknowledged their responsibility, pursuant to 37 C.F.R. § 1.805, to provide a replacement or supplemental deposit if the depository possessing the deposit is unable to furnish samples thereof or is able to furnish samples thereof but the deposit has become contaminated or has lost its capability to function as described in the specification. Applicants contend that all the requirements of 37 C.F.R. §§ 1.801-1.809 have been met. *In re Lundak,* 225 U.S.P.Q. 90 (Fed. Cir. 1985). Withdrawal

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of this rejection is therefore respectfully solicited.

The Office Action also asserts a rejection of claim 8 under 35 U.S.C. § 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most clearly connected, to make and use the invention. The Action states that the specification, while being enabling for using the claimed method to produce a polypeptide, or fragment thereof, which comprises the amino acid sequence set forth in SEQ ID NO: 5, does not reasonably provide enablement for using the claimed method to produce any other polypeptide. The Action also states that the specification does not describe any polypeptide encoded by a nucleic acid molecule comprising a nucleotide sequence that is complementary to a nucleotide sequence as set forth in SEQ ID NO: 4 or a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 5, and that such a polypeptide would not be expected to have the same, or even similar, function as the polypeptide set forth in SEQ ID NO: 5. The Action also states that while the host cell of claim 5 is expected to produce hundreds of proteins, the specification only teaches that the host cell of claim 5 can be used to produce a polypeptide comprising the amino acid sequence of SEQ ID NO: 5.

Applicants note that claim 8 has been amended to recite "[a] process of producing a polypeptide encoded by the nucleic acid molecule of any of Claims 1(a)-(c), 2, or 3(a)." Applicants also note that claim 8, as amended, does not encompass a process of producing a polypeptide encoded by a nucleotide sequence that is complementary to a nucleotide sequence as set forth in SEQ ID NO: 4 or a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 5. Moreover, Applicants do not understand that the Patent Office has taken the position that pending claims 1(a)-(c), 2, and 3(a) recite *any* polypeptide, particularly because to do so would require that all recited limitations in those claims be ignored. Applicants, therefore, contend that claim 8, as amended, does not encompass a process of producing *any* polypeptide, and therefore, that this claim satisfies the enablement requirement of 35 U.S.C. § 112, first paragraph.

Applicants respectfully contend that rejections based on 35 U.S.C. § 112, first paragraph, have been overcome by amendment or traversed by argument, and request that the Examiner withdraw all rejections made on this basis.

6. Rejections of claims 1-5 and 7 under 35 U.S.C. § 102

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The Office Action asserts a rejection of claims 1-5 and 7 under 35 U.S.C. § 102(b), as being anticipated by Hillier *et al.* (GenBank® EST database Accession No. AA422178). The Action states that while Hillier *et al.* does not disclose a nucleotide sequence as set forth in SEQ ID NO: 4 or encoding a polypeptide as set forth in SEQ ID NO: 5, Hillier *et al.* does disclose a nucleotide sequence encoding a polypeptide that is 100% identical to that amino acid sequence set forth in SEQ ID NO: 5 over the region spanning from amino acid residues 1 to 76. The Action first asserts that since Hillier *et al.* disclose a nucleotide sequence that shares identity with a portion of the nucleotide sequence set forth in SEQ ID NO: 4, Hillier *et al.* disclose a nucleotide sequence that is complementary to the nucleotide sequence of SEQ ID NO: 4. The Action next asserts that since the instant application does not disclose the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755, and defines the DNA insert in ATCC Deposit No. PTA-1755 at page 2, lines 26-29 as comprising a nucleotide sequence that encodes an allelic variant or splice variant of the nucleotide sequence of SEQ ID NO: 4, the nucleotide sequence of Hillier *et al.* is the same as the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755, which necessarily encodes a variant of the polypeptide encoded by SEQ ID NO: 4. The Action next asserts that since the nucleotide sequence of Hillier *et al.* comprises, for example, the region of the nucleotide sequence of SEQ ID NO: 4 spanning nucleotide residues 29 to 130, which encodes amino acid residues 1-34 of SEQ ID NO: 5, the nucleotide sequence of Hillier *et al.* comprises a region of the nucleotide sequence of SEQ ID NO: 4, or the DNA insert in ATCC Deposit No. PTA-1755, encoding a polypeptide fragment of at least about 25 amino acid residues, but not more than 80 amino acid residues, wherein upon injection into an animal the polypeptide fragment produces an antibody that binds to the polypeptide as set forth in SEQ ID NO: 5. Applicants traverse this rejection.

To support a 35 U.S.C. § 102 rejection, a reference must disclose every aspect of the invention against which it is applied. As a general rule, for prior art to anticipate under § 102, each and every element of the claimed invention must be identically disclosed in a single reference. *Corning Glass Works v. Sumimoto Electric*, 9 U.S.P.Q.2d 1962, 1965 (Fed. Cir. 1989). The exclusion of even a single claimed element from a reference, no matter how insubstantial or obvious, from a reference is enough to negate anticipation. *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 1093, 1098 (Fed. Cir. 1983).

Applicants note first that because the nucleotide sequence disclosed by Hillier *et al.* lacks the

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nucleotide found at position 258 in the nucleotide sequence of SEQ ID NO: 4 (as shown in Exhibit B), one of ordinary skill in the art would determine that the deduced polypeptide encoded by the nucleic acid molecule disclosed by Hillier *et al. differs* from the polypeptide set forth in SEQ ID NO: 5 at positions 77-81 and possesses an *additional* 17 amino acids at its C-terminal end (*i.e.*, the polypeptide predicted by Hiller *et al.* is nearly 121% larger than the polypeptide disclosed by Applicants in the instant specification). This does not constitute a variant; this is in fact a different protein, being not only longer, but possessing a different amino acid sequence.

Applicants respectfully disagree with the Action's assertion that since Hillier *et al.* disclose a nucleotide sequence that shares identity with a *portion* of the nucleotide sequence set forth in SEQ ID NO: 4, Hillier *et al.* disclose a nucleotide sequence that is complementary to the nucleotide sequence of SEQ ID NO: 4. Applicants contend that the nucleotide sequence complement of, for example, 5'-A-G-C-T-A-G-C-T-3' is well understood in the art to be 5'-T-C-G-A-T-C-G-A-3', rather than 5'-T-C-G-3' or some other *portion* of the nucleotide sequence 5'-T-C-G-A-T-C-G-A-3'. Applicants contend, therefore, that one of ordinary skill in the art would understand that a nucleotide sequence that is complementary to the coding portion of the nucleotide sequence of SEQ ID NO: 4, for example, must first be *the same length* as that portion of the nucleotide sequence of SEQ ID NO: 4 (*i.e.*, 243 nucleotides). Applicants contend that such a meaning is consistent with the meaning of the term in the art; for example, the term "complementary to" is given the meaning "a mold of the original," such that the sequence of nucleotides in a nucleic acid molecule is *preserved* in its complementary strand by Alberts *et al.* (*Molecular Biology of the Cell*, pp. 5-7 (Garland Publishing, Inc., 1994)). Moreover, Applicants contend that one of ordinary skill in the art would also understand that a complementary sequence generated from a nucleotide sequence lacking the nucleotide found at position 258 in the nucleotide sequence of SEQ ID NO: 4 could *not* serve as a mold of SEQ ID NO: 4 since such a sequence would *not* preserve the nucleotide sequence of SEQ ID NO: 4. Applicants contend that because the nucleotide sequence of Hillier *et al.* comprises 294 nucleotides and lacks, *inter alia*, the nucleotide found at position 258 in the nucleotide sequence of SEQ ID NO: 4, Hillier *et al.* do not disclose a nucleotide sequence that is complementary to the nucleotide sequence of SEQ ID NO: 4.

Applicants also respectfully disagree with the Action's assertion that since the instant application does not disclose the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-

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1755, and defines the DNA insert in ATCC Deposit No. PTA-1755 at page 2, lines 26-29 as comprising a nucleotide sequence that encodes an allelic variant or splice variant of the nucleotide sequence of SEQ ID NO: 4, the nucleotide sequence of Hillier *et al.* is the same as the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755, which necessarily encodes a variant of the polypeptide encoded by SEQ ID NO: 4. Applicants note first that claims 1(b) and 2(b) recite a nucleotide sequence of the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755. As described in section 2 above, the portion of the specification cited by the Examiner (*i.e.*, page 2, lines 26-29) does not describe the DNA insert in ATCC Deposit No. PTA-1755 as comprising a nucleotide sequence that encodes an allelic variant or splice variant of the nucleotide sequence of SEQ ID NO: 4, but rather, recites a genus of nucleic acid molecules, wherein the genus includes within its scope nucleotide sequences that encode allelic variants or splice variants. To more particularly point out that the DNA insert in ATCC Deposit No. PTA-1755 comprises a nucleotide sequence that encodes a Secs-1 polypeptide, Applicants have amended claims 1 and 2 to recite "a nucleotide sequence of the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755." Applicants contend that because the nucleotide sequence of Hillier *et al.* encodes a polypeptide that *differs* from the polypeptide set forth in SEQ ID NO: 5 at positions 77-81 and possesses an *additional* 17 amino acids at its C-terminal end, the nucleotide sequence of Hillier *et al.* does not encode a Secs-1 polypeptide, and therefore, the nucleotide sequence of Hillier *et al.* is *not* the same as the nucleotide sequence of the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755.

Applicants also respectfully disagree with the Action's assertion that since the nucleotide sequence of Hillier *et al.* comprises, for example, the region of the nucleotide sequence of SEQ ID NO: 4 spanning nucleotide residues 29 to 130, which encodes amino acid residues 1-34 of SEQ ID NO: 5, the nucleotide sequence of Hillier *et al.* comprises a region of the nucleotide sequence of SEQ ID NO: 4, or the DNA insert in ATCC Deposit No. PTA-1755, encoding a polypeptide fragment of at least about 25 amino acid residues, but not more than 80 amino acid residues, wherein upon injection into an animal the polypeptide fragment produces an antibody that binds to the polypeptide as set forth in SEQ ID NO: 5. Applicants note first that claim 2 recites a region of the nucleotide sequence of SEQ ID NO: 4, or the DNA insert in ATCC Deposit No. PTA-1755, encoding a polypeptide fragment of at least about 25 amino acid residues, but not more than 80

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amino acid residues. Applicants also note that the specification positively recites that fragments of the disclosed sequences (*i.e.*, Secs-1 polypeptide fragments) are encompassed within the scope of the invention (page 9, line 14 to page 10, line 2). Hillier *et al.*, on the other hand, does *not* recite fragments of the polypeptide encoded by the nucleotide sequence disclosed in GenBank® EST database Accession No. AA422178. In fact, as described in Applicants' response to the Office Action mailed August 9, 2001, Hillier *et al.* does not even teach a full-length polypeptide, let alone polypeptide fragments of that full-length polypeptide. What Hillier *et al.* does disclose is a nucleotide sequence that one of ordinary skill in the art would deduce encodes a polypeptide of 98 amino acids. Applicants contend that because no single member of the genus of nucleic acid molecules defined by claim 2 encodes a polypeptide of greater than 80 amino acids, the nucleotide sequence disclosed by Hillier *et al.* encodes a polypeptide of 98 amino acids, and Hillier *et al.* does not disclose fragments of the nucleotide sequence of GenBank® EST database Accession No. AA422178, Hillier *et al.* cannot anticipate claim 2.

Because Hillier *et al.* does not disclose a nucleotide sequence that meets each and every limitation of the claimed invention, GenBank® EST database Accession No. AA422178 cannot anticipate claims 1-5 and 7, as amended. Applicants, therefore, respectfully request that this ground of rejection be withdrawn.

The Office Action next asserts a rejection of claims 1-5 and 7 under 35 U.S.C. § 102(b), as being anticipated by GenBank® Accession No. AA283751. The Action states that GenBank® Accession No. AA283751 discloses a cDNA molecule that was cloned into the vector pT7T3D, which was used to transform the prokaryotic host cell DH10B. The resulting clone was designated as IMAGE:713624. The Action also states that this clone was made publicly available as of April or May of 1997. While acknowledging that the nucleotide sequence disclosed in GenBank® Accession No. AA283751 differs from the nucleotide sequence set forth in SEQ ID NO: 4, the Action asserts that the revised Declaration under 37 C.F.R. § 1.131 filed September 25, 2002 provides evidence that the nucleotide sequence of the insert in clone IMAGE:713624 is the same as the nucleotide sequence set forth in SEQ ID NO: 4. The Action also asserts that notwithstanding the differences between the nucleotide sequence disclosed in GenBank® Accession No. AA283751 and the nucleotide sequence set forth in SEQ ID NO: 4, GenBank® Accession No. AA283751 anticipates the nucleotide sequence of SEQ ID NO: 4 because the nucleotide sequence of the insert in clone IMAGE:713624 is an

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inherent property of that clone. Applicants traverse this rejection.

As described in the revised Declaration under 37 C.F.R. § 1.131 filed September 25, 2002, the open reading frame of the nucleotide sequence of SEQ ID NO: 4 differs from the nucleotide sequence of GenBank® Accession No. AA28375. Specifically, the nucleotide sequence of GenBank® Accession No. AA283751 contains two mismatches, seven point deletions, and a single point insertion (Exhibit C). As a result of these sequence differences, none of the four open reading frames of the nucleotide sequence of GenBank® Accession No. AA283751 encodes the full-length human Secs-1 polypeptide of SEQ ID NO: 5. In addition, GenBank® Accession No. AA283751 does not disclose any of the other species of nucleic acid encompassed by the pending claims, including: a nucleotide sequence that is complementary to the nucleotide sequence of SEQ ID NO: 4, the nucleotide sequence of the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755, or a nucleotide sequence encoding a polypeptide as set forth in SEQ ID NO: 5; a fragment of the nucleotide sequence of SEQ ID NO: 4 or the DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755, encoding a polypeptide fragment of at least about 25 amino acid residues, but not more than 80 amino acid residues; or a nucleotide sequence encoding a conservatively-substituted variant of the amino acid sequence of SEQ ID NO: 5. Applicants contend that because GenBank® Accession No. AA283751 does not disclose a nucleotide sequence that meets each and every limitation of the claimed invention, this reference cannot anticipate claims 1-5 and 7, as amended.

As Applicants understand the Examiner's argument, GenBank® Accession No. AA283751 anticipates claims 1-5 and 7 because (a) this reference describes a clone (IMAGE:713624) that contains the nucleotide sequence of SEQ ID NO: 4, rather than the nucleotide sequence that is *actually disclosed* in the reference; (b) the nucleotide sequence of the insert in clone IMAGE:713624 is an inherent property of that clone; and (c) clone IMAGE:713624 was made publicly available as of April or May of 1997. Applicants contend that one of ordinary skill in the art by examining GenBank® Accession No. AA283751 could not make the claimed invention without further research or experimentation, because of the nucleotide sequence differences pointed out above. Accordingly, the *actual* sequence of the insert of clone IMAGE:713624 was not publicly accessible prior to the critical date of the instant application, and to produce any of the claimed nucleic acids from the actual sequence of the insert of clone IMAGE:713624 would require the

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exercise of further research or experimentation. In such an instance, a prior art reference cannot be considered "publicly accessible" under the statute, as set forth by the Court of Appeals for the Federal Circuit:

> Because there are many ways in which a reference may be disseminated to the interested public, "public accessibility" has been called the touchstone in determining whether a reference constitutes a "printed publication" bar under 35 U.S.C. § 102(b). ... The proponent of the publication bar must show that prior to the critical date the reference was sufficiently accessible, at least to the public interested in the art, so that such a one by examining the reference could make the claimed invention without further research or experimentation.

In re Hall, 781 F.2d 897, 898-99 (Fed. Cir. 1986) (citations omitted). If the reference was not publicly accessible, which it cannot be if it required the practice of further research and experimentation to rise to the level of an anticipatory reference, then the reference is not properly prior art under 35 U.S.C. §102(b), and the pending claims are not unpatentable on this basis.

Applicants respectfully contend that the evidence of record supports their argument that GenBank® Accession No. AA283751 does *not* disclose the instantly-claimed invention and those interested in the art, upon examining GenBank® Accession No. AA283751, would understand that the cDNA insert of clone IMAGE:713624 comprises a nucleotide sequence that is substantially different from the nucleotide sequence of SEQ ID NO: 4. Applicants contend that one of ordinary skill in the art could not practice the claimed invention (*i.e.*, an isolated nucleic acid molecule comprising the nucleotide sequence of SEQ ID NO: 4) merely by *examining* GenBank® Accession No. AA283751, or the clone that this reference describes, without further research or experimentation. For example, because the nucleotide sequence of GenBank® Accession No. AA283751 contains two mismatches, seven point deletions, and a single point insertion, one of ordinary skill in the art would be unable to prepare (*e.g.*, by synthesis) a nucleotide sequence encoding the full-length human Secs-1 polypeptide of SEQ ID NO: 5. Applicants contend that the nucleotide sequence of SEQ ID NO: 4 does not "necessarily flow[] from the teachings of the applied prior art," as it is required to do to properly anticipate the pending claims. *Ex parte Levy*, 17 U.S.P.Q.2d (BNA) 1461, 1464 (B.P.A.I. 1990). Applicants further contend that because the actual nucleotide sequence of the clone described in GenBank® Accession No. AA283751 was not publicly accessible prior to the critical date of the instant application, this reference cannot anticipate claims

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1-5 and 7, as amended.

Applicants believing that the rejections based on 35 U.S.C. § 102 have been overcome by amendment or traversed by argument, respectfully request that the Examiner withdraw all rejections made on this basis.

7. Rejections of claims 1-8 under 35 U.S.C. § 103

The Office Action asserts a rejection of claims 1-8 under 35 U.S.C. § 103(a), as being unpatentable over Hillier *et al.* (GenBank® EST database Accession No. AA422178) in view of Bendig, 1988, *Genet. Eng.* 7:91-127, and Niwa *et al.*, 1991, *Gene* 108:193-99. The Action states that while Hillier *et al.* does not disclose a nucleotide sequence as set forth in SEQ ID NO: 4 or encoding a polypeptide as set forth in SEQ ID NO: 5, Hillier *et al.* does disclose a nucleotide sequence encoding a polypeptide that is 100% identical to that amino acid sequence set forth in SEQ ID NO: 5 over the region spanning from amino acid residues 1 to 76. The Action also states that methods for constructing expression vectors, methods for introducing such expression vectors into prokaryotic and eukaryotic host cells, and methods for producing polypeptides encoded by such expression vectors were conventional in the art at the time the invention was made, as evidenced by Bendig and Niwa *et al.*, which disclose the production of recombinant proteins in mammalian cells using eukaryotic expression vectors. The Action asserts, therefore, that it would have been *prima facie* obvious to one of ordinary skill in the art, at the time the invention was made, to make and use an eukaryotic expression vector comprising a nucleic acid molecule having the nucleotide sequence disclosed by Hillier *et al.* to produce the polypeptide encoded by that nucleotide sequence in mammalian cells. Applicants traverse this rejection.

As described in section 6 above, Hillier *et al.* does not anticipate claims 1-5 and 7 because (a) the nucleotide sequence of Hillier *et al.* comprises 294 nucleotides and lacks, *inter alia*, the nucleotide found at position 258 in the nucleotide sequence of SEQ ID NO: 4, (b) the nucleotide sequence of Hillier *et al.* encodes a polypeptide that differs from the polypeptide set forth in SEQ ID NO: 5 at positions 77-81 and possesses an additional 17 amino acids at its C-terminal end, and (c) Hillier *et al.* does not disclose polypeptide fragments. Thus, there is no teaching of the instantly-claimed nucleic acid molecules in the Hillier *et al.* reference. As described in section 5 above, claim 8 has been amended to recite "[a] process of producing a polypeptide encoded by the nucleic acid

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molecule of any of Claims 1(a)-(c), 2, or 3(a)." Applicants note that neither Bendig nor Niwa *et al.* disclose the production of a polypeptide encoded by the nucleic acid molecule of any of Claims 1(a)-(c), 2, or 3(a) in mammalian cells using eukaryotic expression vectors. Applicants respectfully contend that because Hillier *et al.* does not disclose the instantly-claimed nucleic acid molecules, and neither Bendig nor Niwa *et al.* disclose the production of a polypeptide encoded by the nucleic acid molecule of any of Claims 1(a)-(c), 2, or 3(a) in mammalian cells using eukaryotic expression vectors, claims 1-8 are not obvious under 35 U.S.C. § 103(a) with respect to the Hillier *et al.* reference in view of Bendig and Niwa *et al.* Applicants, therefore, respectfully request that this ground of rejection be withdrawn.

The Office Action asserts a rejection of claims 1-8 under 35 U.S.C. § 103(a), as being unpatentable over GenBank® Accession No. AA283751 in view of Bendig, 1988, *Genet. Eng.* 7:91-127, and Niwa *et al.*, 1991, *Gene* 108:193-99. The Action states that GenBank® Accession No. AA283751 anticipates the nucleotide sequence of SEQ ID NO: 4 because the nucleotide sequence of the insert in clone IMAGE:713624 is an inherent property of that clone. The Action also states that methods for constructing expression vectors, methods for introducing such expression vectors into prokaryotic and eukaryotic host cells, and methods for producing polypeptides encoded by such expression vectors were conventional in the art at the time the invention was made, as evidenced by Bendig and Niwa *et al.*, which disclose the production of recombinant proteins in mammalian cells using eukaryotic expression vectors. The Action asserts, therefore, that it would have been *prima facie* obvious to one of ordinary skill in the art, at the time the invention was made, to make and use an eukaryotic expression vector comprising a nucleic acid molecule having the nucleotide sequence disclosed by GenBank® Accession No. AA283751 to produce the polypeptide encoded by that nucleotide sequence in mammalian cells. Applicants traverse this rejection.

As described in section 6 above, GenBank® Accession No. AA283751 is not in the prior art to the pending claims because the actual nucleotide sequence of the clone described in this reference was not publicly accessible prior to the critical date of the instant application. As described in section 5 above, claim 8 has been amended to recite "[a] process of producing a polypeptide encoded by the nucleic acid molecule of any of Claims 1(a)-(c), 2, or 3(a)." Applicants note that neither Bendig nor Niwa *et al.* disclose the production of a polypeptide encoded by the nucleic acid molecule of any of Claims 1(a)-(c), 2, or 3(a) in mammalian cells using eukaryotic expression

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vectors. Applicants respectfully contend that because GenBank® Accession No. AA283751 is not in the prior art to the instantly-claimed nucleic acid molecules, and neither Bendig nor Niwa *et al.* disclose the production of a polypeptide encoded by the nucleic acid molecule of any of Claims 1(a)-(c), 2, or 3(a) in mammalian cells using eukaryotic expression vectors, claims 1-8 are not obvious under 35 U.S.C. § 103(a) with respect to GenBank® Accession No. AA283751 in view of Bendig and Niwa *et al.* Applicants, therefore, respectfully request that this ground of rejection be withdrawn.

Applicants respectfully contend that rejections based on 35 U.S.C. § 103 have been overcome by amendment or traversed by argument, and request that the Examiner withdraw all rejections made on this basis.

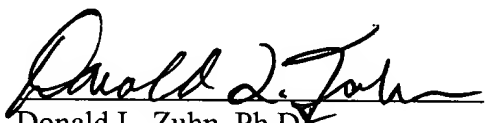
CONCLUSIONS

Applicants respectfully contend that all conditions of patentability are met in the pending claims as amended. Allowance of the claims is thereby respectfully solicited.

If Examiner Rawlings believes it to be helpful, he is invited to contact the undersigned representative by telephone at 312-913-0001.

Respectfully submitted,
McDonnell Boehnen Hulbert & Berghoff

Dated: November 20, 2003

By: 
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